Environmental Resource Management, Inc.
P.O. Box 5305, Bozeman, Montana 59717 Phone (406) 582-8491 email: ruwaller@gmail.com

January 30, 2018

A.M. Welles
Tim Hokanson
P.O. Box 2808
Norris, Montana 59745

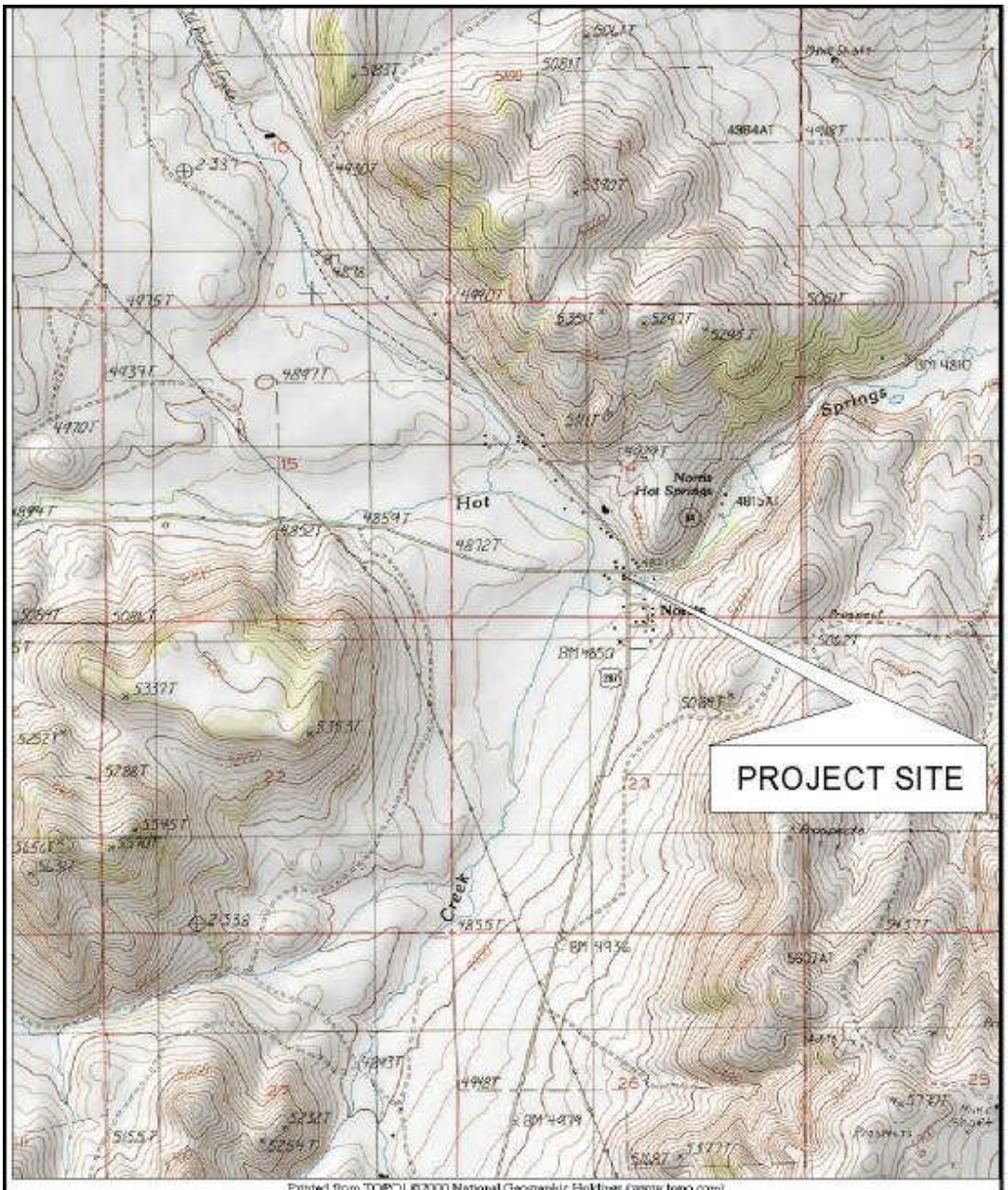
Subject: Remedial Investigation Work Plan
Mcleod Mercantile, Norris, Montana
Facility ID No. 56-14138, DEQ Release No. 5254
Work Plan ID No. 10789

Dear Mr. Hokanson:

Environmental Resource Management, Inc. (ERM) is pleased to submit this work plan for Remedial Investigation (RI) at the above referenced petroleum release site. The work plan was requested by DEQ in a letter dated December 22, 2017.

Site Location
The McLeod Mercantile petroleum release site is located at the southwest corner of the intersection of U.S. Highways 84 and 287 in Norris, Montana as shown on Figure 1. The site is situated in the southwest quarter of the southeast quarter of Section 14, Township 3 South, Range 1 West, Montana Principal Meridian.

Site Geology
The project site is located on an alluvial terrace of Warm Springs Creek. Regional topography slopes gently to the northeast. Soils belonging to an unnamed series consist of clay loam and gravely clay loam and overlie bedrock consisting of Archean metamorphic rocks. Groundwater is encountered at 8-10 feet below ground surface and flows toward Warm Springs Creek under a shallow gradient. Shallow groundwater is not utilized for human consumption.


PROJECT SITE
Hot
Springs
Creek
Printed from TOPO! ©2000 National Geographic Holdings (www.topo.com)
ENVIRONMENTAL RESOURCE MANAGEMENT, INC.
Consulting Geologists and Environmental Scientists
MCLEOD MERCANTILE
NORRIS, MONTANA
SITE INVESTIGATION
FIGURE 1, SITE LOCATION MAP

Scope of Work
Proposed tasks to be completed within the scope of this work plan are as follows:

1) Meet with DEQ's project manager to discuss the release, work required to complete the RI and a plan to resolve the release.
2) Identify the source and cause of the petroleum release.
3) Collect samples necessary to determine the magnitude and extent of petroleum contamination. Analyze samples at an analytical laboratory in accordance with Montana Tire1 Risk-Based Corrective Action Guidance for Petroleum Releases.
4) Identify potential receptors and assess the potential for contamination to come into contact with identified receptors.
5) Prepare a Release Closure Plan (RCP).
6) Prepare a Remedial Investigation Report.

Soil Boring/Monitoring Well Installation
Up to four groundwater monitoring wells will be installed as shown on Figure 2 to define the extent and magnitude of petroleum contamination in soil and groundwater beneath the project site. Additional borings or wells may be required. The soil borings and monitoring wells will be installed by Haz Tech Drilling, Billings, MT using a hollow-stem auger drilling rig. Groundwater monitoring wells will be completed at 20 feet below ground surface with 15 feet of 0.020-inch slotted flush-threaded Schedule 40 PVC well screen and five feet of blank PVC well casing. The annulus around the well screen will be filled with 10-20 mesh Colorado silica to within one foot above the well screen and the remaining annulus will be filled with 3/4-inch bentonite chips to within one foot of ground surface. All of the monitoring wells will be fitted with flush mount covers.

Well Development/Surveying
The newly installed monitoring wells will be developed for a minimum of one hour using a submersible pump until at least ten well volumes of groundwater are removed and no further improvements in water clarity are noted. Static water levels will be measured in all of the monitoring wells following a 24 hour equilibration period after development. Water level measurements will be obtained using a Keck ET-89 electronic water level indicator.

All newly installed and existing monitoring wells will be surveyed for elevation within $\pm$ 0.01 feet by a Montana Registered Land Surveyor and referenced to a local USGS benchmark.


STERLING ROAD
DIESEL USTs
McLEOD
MERCANTILE
DIESEL
DISPENSERS
US HIGHWAY 287
DRAINAGE LINE EXCAVATED
10/24-25/2017
66 ft
HOT SPRINGS CREEK
PROPOSED GROUNDWATER
MONITORING WELL LOCATION
APPROXIMATE SCALE
1" = 10'
N
ENVIRONMENTAL RESOURCE
MANAGEMENT, INC.
Consulting Geologists and Environmental Scientists
McLEOD MERCANTILE
NORRIS, MONTANA
SITE INVESTIGATION
FIGURE 2, SITE MAP SHOWING PROPOSED GROUNDWATER
MONITORING WELL LOCATIONS

Material Sampling
Drill cores will be logged for lithology, texture, color, moisture and volatile petroleum content. All soil samples will be visually classified for texture using the Unified Soil Classification System (USCS) according to ASTM-D-2488. Soil samples from two foot intervals and from obvious areas of petroleum discoloration will be analyzed for volatile petroleum hydrocarbons using a Photovac 2020 photo ionization detector (PID) with a standard heated jar headspace method. One soil sample corresponding to the interval that exhibits the highest headspace reading and/or one sample from the air-water interface will be analyzed for Volatile Petroleum Hydrocarbons (VPH) and for Extractable Petroleum Hydrocarbons (EPH) Screen at Alpine Analytical in Helena, Montana.

Groundwater Sample Collection and Analysis
Groundwater samples will be collected from all of the newly installed monitoring wells. Groundwater elevations will be measured in all of the site monitoring wells prior to purging and sample collection.

All of the well covers will be opened and the locking caps removed at least 30 minutes prior to obtaining water level measurements. Static water levels will be measured from a reference point on top of the north side of each well casing using a Keck ET-89 electronic water levels indicator. The water level indicator will be decontaminated prior to each measurement. Decontamination will be accomplished by scrubbing the indicator tip in an *Alconox®* wash solution, rinsing with a 10% methanol solution and triple rinsing with distilled water.

Following measurement of the static water levels, sample collection will commence by purging each well using a low flow sampling pump. Indicator parameters ORP, pH, specific conductance and temperature will be measured during sample purging. Samples will be collected when the measured indicator parameters stabilize, indicating that stagnant water has been removed from the well bore.

Samples will be decanted into appropriate sample jars, preserved and placed on ice while awaiting delivery to the analytical laboratory. Groundwater samples will be analyzed for VPH and EPH Screen.

Report and RCP Preparation
A RCP will be prepared to outline a process to achieve release closure. The results of the RCP preparation will be included in a Remedial Investigation Report (RI-01). The report will summarize the results of work conducted within the scope of this work plan and will provide recommendations for future corrective action that may be required.

Investigative Methods
Methods practiced during this investigation will follow generally accepted practices of similar consulting firms in the same geographical area.
Quality Assurance/ Quality Control methods will be employed throughout all phases of this investigation to ensure meaningful and reproducible results and data.

Health and Safety
Health and safety issues will be addressed throughout this investigation to prevent exposure of site workers and other onsite personnel to potentially hazardous situations and chemical compounds. Several physical hazards will inherently be present throughout the field investigation while heavy equipment is being utilized for test pit excavation. Site specific health and safety precautions and information will be contained in a Health and Safety Plan which will remain onsite during all field activities.

Investigation Derived Waste
Drill cuttings, excess sample materials, drilling fluids, and water removed from a well during installation, development, and aquifer testing and all other investigation derived wastes will be disposed of according to all applicable local, state and federal laws and regulations governing the disposition of investigation derived wastes. Investigation derived wastes may consist of the following materials:

-- Drill cuttings
-- Purge water from monitor well sampling
-- Used soil and groundwater sampling materials
-- Excess sample material (soil and water)

Project Costs

Costs associated with implementation of this work plan are outlined below. Costs were estimated assuming installation of four groundwater monitoring wells.

COST ESTIMATE—REMEDIAL INVESTIGATION, MCLEOD MERCANTILE, NORRIS, MT

TASK	UNIT COST	COST
Task 1-Well Installation and Sampling		
Project management	4.0 hrs @ $110/hr	$330.00
Work plan prep	CAP RI-01	1045.00
Onsite supervision, Scientist II	16.0 hrs @ $100/hr	1600.00
PID rental	2 days @ $74/day	148.00
Laboratory analysis	8 VPH soil @ $135 ea.	1080.00
	8 EPH soil @ $70 ea.	560.00
Sample shipping		150.00
Mobilization, two RT from Bozeman	3.0 hrs @ $100/hr	300.00
Mileage, 4WD field pickup	180 miles @ $0.59/mile	106.20
Per Diem	2 days @ $23/day	46.00
Surveying	estimated	1200.00
Well development, Tech III	6.0 hrs @ $90/hr	540.00
Drilling services	Haztech Drilling bid	5577.00
Task 2-Groundwater Monitoring		
Groundwater sampling, Tech III	4 samples @ $180/sample	$720.00
Laboratory analysis	4 VPH water @ $135 ea.	540.00
	4 EPH water @ $70 ea.	280.00
Sample shipping		150.00
Mobilization, RT from Bozeman	1.5 hrs @ $90/hr	135.00
Mileage, 4WD field pickup	90 miles @ $0.59/mile	53.10
Per Diem	1 day @ $23/day	23.00
Task 2-Reporting		
RI-01 Report preparation		$2995.00
RCP Preparation	8.0 hrs @ $110/hr	880.00
TOTAL ESTIMATED COST		**$18,458.30**

Limitations

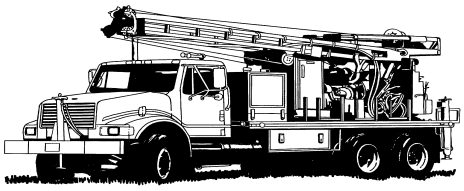
All work is performed in accordance with generally accepted practices of other consulting firms conducting similar studies. ERM observed that degree of care and skill generally exercised by other consultants under similar conditions. ERM's findings and conclusions must not be considered as scientific certainties, but as opinions based upon our professional judgment based upon the data gathered during the course of this investigation. Other than this, no warranty is implied or intended.

Submitted by
Environmental Resource Management, Inc.

Bob Waller
Project Geologist

ec: DEQ-PTCS
MPTRCB

HAZ TECH Drilling, Inc.



P.O. Box 30622
2910 Hannon Road, Suite #6
Billings, MT 59107
Phone: 406-896-1164 or 800-359-1502
Fax: 406-896-1462

Proposal

TO: Environmental Resource Management, Inc.
ATTN: Bob Waller
P.O. Box 5305
Bozeman, MT 59717
Ph-406-582-8491

DATE: 1/28/2018

PROJECT Norris, MT
17-067

Description:
4-20ft wells with 15ft of .020 screen and flush mount covers. 2 wells are in concrete.

TERMS: Net 30 Days

	UNITS EST.	UNIT PRICE	AMOUNT EST.
**********	**********	**********	**********
Mob/ Demob, Per Mile	380	$3.25	$1,235.00
Support Truck, Per Day	2	$100.00	$200.00
Perdiem, Per Crew Day	2	$46.00	$92.00
Lodging, Per Night, Estimated	1	$250.00	$250.00
Auger Drilling, Per Ft	80	$18.50	$1,480.00
Well Installation, Per Ft	80	$24.50	$1,960.00
Flush Mount Vaults with Concrete, Each	4	$90.00	$360.00
Standby, Per Hr	0	$150.00	$0.00
			**********
		ESTIMATED TOTAL:	$5,577.00

Notes:
1) Client is responsible to clear location of utilities.
2) Client is responsible for disposal of drill cuttings.
3) Client will be invoiced only the amounts used.
4) We assume that site is accessible by truck mount drill rig.

Proposal By: Paul Bray

Petroleum Tank Release Compensation Board

Soil Boring/Monitoring Well Installation Unit Cost Worksheet

Contractor Information

Company Name: Boland Drilling
Address: 4701 N Star Blvd
City, State, Zip: Great Falls, MT 59405
Cost Estimator: Chris Boland
Phone: 406-761-1063
Signature:
1/26/2018

Project Information and Specifications

job number 17-067
Facility ID #
Release #
WP ID #

Address:
Norris

Type of Drilling Equipment

Hollow-Stem Augers	x
Air Rotary	
Direct Push	
Other (please specify)	

Soil Boring

Number of Borings	4
Boring Diameter (inches)	8
Depth (per boring - ft)	20

Surface: Concrete Asphalt Barren
Soil Disposal: Onsite Stockpile Drums
Abandonment: Bentonite Soil Cuttings

Soil Sampling

Continuous Soil Sampling	
Interval Soil Sampling (specify interval)	
No Sampling	

Monitoring Well Specifications

Number of Wells	4
Surface: Concrete Asphalt Barren	
Depth (per well)	20
Estimated Depth to Groundwater (ft)	
Boring Diameter (inches)	8
Casing Diameter and type (inches)	2

Surface Completion: Flush Mount Aboveground

Cost Estimate Explanation:

(1) Mobilization/Demobilization: Includes all costs and mileage to transport equipment, materials, and personnel to and from the site location. More than one mobilization event of either the drilling rig or support vehicle will require justification and pre-approval by the DEQ-PRS and Board staffs. This item should be estimated on a per mile unit rate

(2) Soil Boring Installation: Includes all costs (labor, equipment, and materials) to drill, collect soil samples and abandon soil borings, as well as decontaminate equipment. Drilling costs should be estimated using a per foot unit rate. Unit cost should include handling of contaminated soil by stockpiling or placing in drums. Assume level "C" personal protective equipment.

(3) Monitoring Well Installation: Includes all costs (labor, equipment, and materials) to drill, collect soil samples, and complete monitoring well to specifications and according to Montana Well Drillers Board rules, as well as decontaminate equipment. Drilling costs should be estimated using a per foot unit rate. Unit cost should include handling of contaminated soil by stockpiling or placing in drums. Assume level "C" personal protective equipment.

(4) Drilling Standy: Drilling standby should be estimated on an hourly basis. Prior approval and justification for accumulating standby time is needed prior to billing.

(5) Well Development: Includes all costs (labor, equipment, and materials) to develop monitoring wells. This task should be estimated using a per well unit rate.

(6) Monitoring Well Abandonment: Includes all costs (labor, equipment, and materials) to properly abandon a well location according to the Montana Well Drillers Board rules. Abandonment costs should be estimated using a per well unit rate.

Soil Boring/Monitoring Well Installation Unit Cost Worksheet

TASK		UNIT COST		NUMBER OF UNITS	TOTAL COST
Mobilization/Demobilization (1)					
Mobilization/Demobilization: Drilling Rig		$ 2.00	/mile	380	$ 760.00
Mobilization/Demobilization: Support Vehicle		$ 1.50	/mile	380	$ 570.00
Soil Boring Installation (2)					
Drilling (0'-50' range per boring)		$ 30.00	/foot	80	$ 2,400.00
Drilling (50'-100' range per boring)			/foot		$ -
Other (please specify) _____					$ -
Monitoring Well Installation (3)					
Drilling (0'-50' range per well)		$ 30.00	/foot	80	$ 2,400.00
Drilling (50'-100' range per well)			/foot		$ -
Other (please specify) _____					$ -
Drilling Standby (4)					
-prior approval needed		$ 110.00	/hour		$ -
Well Development (5)					
Well Development		$ 100.00	/well		$ -
Monitoring Well Abandonment (6)					
Abandonment		$ 100.00	/well		$ -
Lodging may only be paid at actual costs when documented by receipts.					
Per Diem					
Lodging: number of individuals =	2	$ 100.00	/person per day	1	$ 200.00
Food: number of individuals =	2	$ 23.00	/person per day	2	$ 92.00
(Breakfast 5.00, Lunch 6.00, Dinner 12.00)					
			TOTAL PROJECT EXPENSE		**$ 6,422.00**

D.O.T. Drums $95.00

Additional Conditions/Comments/Costs:

Drill 4 soil borings to Approx. 20' each and construct 2" monitor wells at Norris, MT

If you require assistance, call 406-841-5090.

Submit completed form to:

Petroleum Tank Release Compensation Board PO Box 200902, Helena MT 59620-0902